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Microleakage and marginal adaptation of three root-end filling materials: *In vitro* study

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The ultimate goal of the endodontic treatment is either to prevent or cure apical periodontitis. When non-surgical endodontic treatment failed to resolve apical periodontitis or unlikely to improve treatment outcome, periapical surgery was indicated. Long term success of periapical surgery is correlated with sealing efficiency of root-end filling materials because efficient sealing ability minimize egress of irritants from inside the root-canal space to the surrounding periodontium. Mineral trioxide aggregate (MTA) seem to be the gold standard material for periapical surgery. Biodentine is a tricalcium silicate bioactive dentine substitute that has similar physical and biological properties to MTA with a shorter setting time and better handling properties. The aim of this *in vitro* study was to compare microleakage and marginal adaptation of biodentine, white MTA (WMTA) and glass ionomer cement (GIC) as root-end filling materials using dye extraction method and scanning electron microscope (SEM), respectively. The results of dye absorbance value and interfacial gap width of the three materials were correlated to seek a correlation between microleakage and marginal adaptation of the three root-end filling materials. The results revealed that WMTA had lower dye absorbance values and smaller interfacial gap distance compared to biodentine and GIC with no statistical significant difference between them. Significant positive correlation was found between sealing ability and marginal adaptation of the tested materials. More *in vitro* and clinical studies are needed to evaluate biodentine as a root-end filling material.

Biography

Islam A Abd El-Aziz Ali has graduated from Faculty of Dentistry, Mansoura University in 2010. He has worked as a Clinical Demonstrator in Department of Conservative Dentistry from 2012 to 2016. He got his MSc from Faculty of Dentistry, Mansoura University in Operative Dentistry and Endodontics in 2016. Currently, he works as an Assistant Lecturer in Department of Endodontics.

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